

Digital television

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More information section at bbc.co.uk/reception

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What is digital TV?

Digital means that TV pictures and sound are converted into computerised 'bits' of information and compressed before being transmitted. The signal arrives at your TV set via an aerial, satellite dish, cable or broadband internet connection. It is then converted back into pictures and sound by a receiver (decoder) which is either in a set-top box connected to the TV or built into a digital TV.

The traditional way of receiving television – analogue TV – gives you a limited number of channels, which you receive via an aerial. The channels are usually BBC One, BBC Two, ITV1, Channel 4 and (if available in your area) Five.

By comparison, digital TV offers:

- a minimum of 30 channels
- a choice of ways to receive it (via an aerial, satellite, cable or broadband internet connection)
- better quality pictures and sound
- interactive features and an on-screen programme guide (EPG)
- radio through your TV set
- recordable subtitles and some audio description

Digital switchover

Between 2008 and 2012, all television in the UK is being switched to digital. It will happen in one ITV region at a time, beginning with Border. When the switchover happens in your region, you will need digital equipment to continue watching TV.

For more information about digital switchover and how to go digital, visit these websites:

- BBC Digital bbc.co.uk/digital
- Digital UK www.digitaluk.co.uk

The BBC is not responsible for the content of external internet sites

Digital TV reception – common problems

Digital TV gives better quality pictures and sound than analogue TV and does not suffer from the same kinds of problems – you will not get a fuzzy or ‘snowy’ picture, ‘ghosting’, hiss or crackling, for example. However, this does not mean that digital reception is problem-free.

The most common problems are:

- the picture breaking up or freezing
- clicking sounds
- picture and sound out of synchronisation
- no picture or sound
- interactive features (via red button) not working
- channels missing

An easy fix that can solve many such problems is to reboot (restart) your set-top box or digital TV set. If channels or features are still missing, the next step to try is to rescan (retune) to find all the channels – some boxes will do this automatically when you reboot them. Follow the instructions on rebooting and rescanning on page 4.

Many reception problems are the result of a weak signal that your digital receiver (set-top box or digital TV) cannot decode. If rebooting and rescanning does not help, see the following pages for information about reception problems related to your digital platform – terrestrial (DTT) (page 5), satellite (page 8), cable or broadband (page 8).

Rebooting and rescanning your digital receiver

Any digital receiver (set-top box or digital TV) has a micro-processor and software at its heart and, like a computer, it can suffer from occasional glitches. Often, simply restarting it is all that is needed – this is called **rebooting**.

- To reboot your receiver, unplug it from the mains power supply and leave it unplugged for about 10 minutes.
- If you have a viewing card, remove it from the slot and wipe it gently with a clean, dry, non-abrasive cloth. Replace it in the slot.
- Plug the receiver back into the power supply – this will reboot (restart) the software.

The next step is **rescanning** (retuning) the receiver. The idea is to clear its 'memory' and make it find all the available channels again – just as when you first used it. Many set-top boxes will do this automatically when they are rebooted. If not, you will probably need to set the receiver to carry out the rescan, as follows.

To clear the receiver's memory:

- Unplug the receiver from the mains power supply and leave it unplugged.
- Unplug the aerial lead from the back of the receiver.
- Plug the receiver back into the power supply, but leave the aerial unplugged. Make sure the TV set is switched on.
- Set the receiver to rescan/retune all channels. Check your user manual for instructions on how to do this. (Different manuals may use different terms, for example Scan, Rescan, Retune, Update or Store.) When the rescan is complete, the TV screen should show a message saying "No channels found". This is because the receiver cannot find any channels when the aerial is not connected – its memory is now cleared.

To restore all the channels:

- Unplug the receiver from the mains power supply.
- Plug the aerial lead into the back of the receiver.
- Plug the receiver back into the power supply. Make sure the TV set is switched on.
- Once again, set the receiver to rescan/retune all channels. This time, because the aerial is connected, the receiver should find all the channels available.

Digital terrestrial TV (DTT) reception problems

DTT (e.g. Freeview) is broadcast from a network of transmitters all over the country and comes to your TV set via an aerial (usually your existing rooftop aerial). To watch it, you need a DTT receiver – this comes in a set-top box, or you can get an integrated digital TV set (IDTV) or a digital recorder with Freeview built in.

Reception problems can often be traced to one of these:

- your receiver (set-top box, digital TV or digital recorder)
- your aerial
- the transmitter

Quick fixes

- Problems with the picture, sound, interactive features or missing channels may be solved by rebooting your receiver and rescanning, as described on page 4.
- You can also check whether your local transmitter is affected by a fault or planned maintenance. See [This week's transmitter work at bbc.co.uk/reception](http://bbc.co.uk/reception).

It may help you pinpoint where the problem is if you can see if it also affecting another set receiving digital TV through a different aerial – for instance, at a neighbour's. If theirs has the same problem, there may be an unreported fault at the transmitter. But if only your TV is affected, there may be a fault in your aerial or in your receiver.

Long-term poor reception

If your DTT reception is generally poor and has been for a long time, it may be a sign that the signal reaching your receiver is not strong enough for it to decode. The difference between a good signal and a weak one can be very slight and even a small reduction in strength may produce picture or sound problems. If you have checked that you are in a Freeview coverage area, you may need to upgrade or replace your aerial or the cable (down-lead) connected to it.

Aerials

We suggest that any work on your aerial is carried out by a professional installer, either one registered with the CAI (Confederation of Aerial Industries), www.cai.org.uk, or a Registered Digital Installer, www.rdi-lb.tv.

For more information, see the [Television aerials factsheet](#).

Some receivers let you check the signal strength. Please see your user manual to find out how to do this. The rule of thumb is that you need at least 60% of the available signal for steady reception. If your receiver does not have this function and you can still receive analogue TV, switch to an analogue channel and see what the picture is like. If it is fuzzy or has 'ghosting', this could also indicate a problem with your aerial – it may be broken or out of alignment.

If you share a communal aerial (for example, in a block of flats) and others are also having problems, you should contact whoever is in charge of the building – the landlord, council or property manager.

More than one DTT receiver

If you have more than one DTT receiver, the signal from your aerial could be weakened if the down-lead is split between them. This could lead to reception problems with all of the receivers and you may need a distribution system. Please consult your retailer or an installation engineer.

Missing channels or problems affecting some channels only

All of the digital terrestrial TV, radio and interactive services are grouped together into six bundles called multiplexes, each of which is transmitted on a different frequency. If you can check whether the missing or affected channels are all in the same multiplex or not, it may help to pinpoint the cause of the problem. There is a full list of all the multiplexes and the channels they carry on page 7.

If all the channels in one multiplex are missing or affected in the same way, it is a sign of a weak or non-existent signal. The problem may be in your aerial or down-lead. In particular, if these are old or faulty, they may not be able to receive some frequencies. A new-style 'wideband' CAI-benchmarked aerial should solve this. Please consult a CAI-registered installation engineer (see box on page 5).

If, on the other hand, you can get some of the channels in a multiplex but not all of them, the problem is more likely to be in your receiver. If rebooting and rescanning (see page 4) does not fix it, please consult your retailer or manufacturer.

Interference

Although DTT and analogue TV are both received via an aerial, DTT is much less likely to be affected by interference. However, interference can sometimes cause problems.

Picture break-up or freezing may be caused by interference by something powered by electricity, such as a domestic appliance, switch or central heating thermostat. To find the source of the interference, leave the TV on and switch off or disconnect your electrical appliances one at a time.

Very occasionally, unusual atmospheric conditions (high air pressure) may cause picture break-up or even complete loss of reception. The only solution in this case is to wait for the weather to change.

Digital terrestrial TV (DTT): UK national multiplexes

Multiplex 1

Channel name	No.
BBC One	1
BBC Two	2
BBC Three	7
CBBC Channel	70
BBC News 24	80
BBCi (text)	105
BBC Radio Scotland (Scotland only)	719
BBC Radio Ulster (NI only)	719
BBC Radio Wales (Wales only)	719
BBC Radio nan Gaidheal (Scotland only)	720
BBC Radio Foyle (NI only)	720
BBC Radio Cymru (Wales only)	720

Multiplex 2

Channel name	No.
ITV1 / GMTV	3
Channel 4 (not Wales)	4
ITV2 / GMTV2	6
Channel 4 (Wales only)	8
ITV3	10
More 4	13
E4	14
ITV4	28
Film Four +1	32
Setanta Sports*	34
CITV Channel	75
Teletext	100
Teletext Cars	102
U105 (NI only)	726
Heart	728
Radio Music Shop	729

Multiplex A

Channel name	No.
S4C Digidol (Wales only)	4
Five	5
Tele G (Scotland only)	8
ABC1	15
QVC	16
UKTV Gold*	17
Bid TV / Screenshop	23
Price-drop TV / Screenshop	24
TCM*	25
UKTV Style*	26
Discovery Channel*	27
British Eurosport*	33
Five US	35
Five Life	36
Top Up TV Anytime 1*	38
Top Up TV Anytime 2*	39
Top Up TV Anytime 3*	40
Discovery Real Time*	42
Top Up TV Promos*	43
Cartoon Network*	72
S4C2 (Wales only)	86
Teachers' TV	88
Television X*	97
Teletext Holidays	101
Teletext Games	103
BBC Radio 1	700
BBC Radio 2	702
BBC Radio 3	703
BBC Radio 4	704
Heat Radio	714
Mojo Radio	721

Multiplex B

Channel name	No.
BBC Four	9
CBeebies	71
BBC Parliament	81
Community Channel	87
BBCi (extra video)	301
BBCi (extra video)	302
BBCi (extra video)	303
BBCi (extra video)	305
1Xtra BBC	701
BBC Radio Five Live	705
BBC Five Live Sports Extra	706
BBC 6 Music	707
BBC 7	708
BBC Asian Network	709

Multiplex C

Channel name	No.
Sky Three	11
UKTV History	12
E4 +1	30
Smile TV	37
Sky News	82
Sky Sports News	83
Sky Text	108
TVTV Digital	304
TalkSPORT	723
3C	724
Premier Christian Radio	725
Virgin Radio	726

Multiplex D

Channel name	No.
The Hits	18
UKTV Bright Ideas	19
FTN	20
TMF The Music Factory	21
Ideal World	22
Film Four	29
ITV Play	31
4TV Interactive Services	300
BBC World Service	710
The Hits Radio	711
Smash Hits!	712
Kiss 100	713
Magic Radio	715
Q Radio	716
Oneword	717
102.2 Smooth FM	718
Kerrang!	722

Channels in the 700s are
radio stations

* pay TV channels

Satellite TV reception problems

Problems with the picture, sound, interactive features or missing channels may be solved by rebooting your set-top box, as described on page 4.

No reception

Heavy rain can cause the temporary loss of all satellite services. This is because the storm blocks either the signals being sent up to the satellite (uplink) or, more often, the signals coming down from the satellite to your dish (downlink). Services should return to normal once the storm has passed.

Wrong regional channels

If you have a Sky set-top box and viewing card, you will normally see your local region BBC One and BBC Two on channels 101 and 102. If your viewing card is damaged or out of date, or you don't have a card, channel 101 will show BBC One London region and channel 102 will show BBC Two England, whether or not you are in those areas. For queries about viewing cards, please contact Sky.

Other problems

Other reception problems may be due to a fault in your satellite dish or set-top box, or may be related to the satellite signal itself. A common problem, for example, is the dish or the LNB (the device mounted on the arm attached to the dish that receives the signal) going out of alignment. For further advice, please contact Sky, your retailer or a satellite installation engineer.

For other queries, the Sky website, sky.com, has a Customer Support section that may be able to provide an answer.

Cable and broadband TV reception problems

Problems with the picture, sound, interactive features or missing channels may be solved by rebooting your set-top box and rescanning, as described on the previous page.

For any other problems with reception or equipment, please contact your cable or broadband supplier. Some suppliers have a Help or Frequently Asked Questions section on their website that may be able to help, or you can contact them through the site.

- Virgin Media www.virginmedia.com
(formerly ntl: and Telewest)
- Wight Cable www.wightcable.com
- WightCable North www.wightcablenorth.com
- Tiscali TV www.homechoice.co.uk
- BT Vision www.btvision.bt.com

Other digital TV features

Interactive services via the red button

Many digital channels have interactive services that you use by pressing the red button on your remote control. These include information about the programme being shown, extra coverage of news, sport and other events, quizzes to join in, etc.

The BBC's interactive service is BBCi. For more information and a demonstration, visit bbc.co.uk/digital. Note: on Freeview, BBCi has slightly fewer features because there is less bandwidth available than on other platforms.

Problems with interactive TV

If you suddenly lose interactive services, try rebooting your set-top box or digital TV (see page 4). With satellite TV, you need an active Sky viewing card to be able to use interactive services, even if you don't have Sky satellite equipment.

If interactive services are slow or don't work properly, it may be because the software in your set-top box has not been updated. This usually happens automatically, but with some older boxes the manufacturer may no longer be updating the software. If so, you may need to buy a new box.

The on-screen red dot

A red dot in the top right-hand corner of the screen means there is interactive content for the programme you are watching. To see this, press the red button on your remote control.

On Freeview, the red dot disappears after a short time, or you can press the green button to remove it. To remove the red dot on Sky, press the 'Back up' button; on cable, press the blue button.

Subtitles

Subtitles are available on all digital platforms (terrestrial, satellite, cable, broadband). Use your remote control to make them appear, either by pressing the 'Subtitles' button (if you have one) or by going to the set-up menu and selecting 'Subtitles'. See your user manual for further details.

If a programme is scheduled to have subtitles but does not, check that you have them turned on and whether they are working on other channels. If not, try rebooting your receiver (see page 3). If only the one programme is affected, please contact the broadcaster.

Audio description

This new service allows you to hear a verbal description of what is happening on screen in between the dialogue. It is designed mainly as an aid to understanding and enjoyment for viewers with sight problems. It is available on Freeview (with a suitable adapter) and Sky satellite, and is starting to become available on cable. The BBC currently has audio description on approximately 8% of its programmes on its main channels. For more information about audio description, see the RNIB website, www.rnib.org.uk.

If a programme is advertised with audio description but you cannot hear it, try rebooting your receiver (see page 4). If this fails, please contact the broadcaster.

Recording from digital TV

With digital TV you can record anything that appears on your TV set as pictures or sound, including subtitles and interactive content. You can record on to DVD or video, or on a hard-drive recorder (also known as a PVR or DVR) that allows you to pause and rewind live TV.

There are so many different set-top boxes and recorders available that we cannot give specific instructions. Generally speaking, to record a digital programme, you need to:

- Set your receiver (set-top box or digital TV) to the channel the programme is being shown on, and make sure the receiver is switched on at the relevant time.
- Set your recorder to the correct channel for your digital receiver. Please see your recorder's manual for further details.

With many set-top boxes and recorders, you can set up a recording using the EPG (electronic programme guide). This means you simply choose the programme you want to record from the on-screen display of channel and programme listings.

You can record from one digital channel while watching another, but only if your receiver (set-top box or digital TV) or your recorder has twin tuners.

VideoPlus+ and PDC (programme delivery control)

You can set a video recorder using VideoPlus+ code numbers, but PDC does not work with digital broadcasts.

Widescreen

The shape of a TV screen is given as the ratio of its width to its height (the aspect ratio). A widescreen TV has an aspect ratio of 16:9, giving a 'letterbox' shape; a standard screen has a ratio of 4:3, a squareish shape.

Most programmes broadcast by the BBC and the other main broadcasters are now made in widescreen, and are transmitted this way on digital TV. On a standard TV set, displaying the full width of widescreen pictures means that there are black bands at the top and bottom of the screen.

If the picture on your TV set looks stretched or squeezed, you may need to alter the settings (viewing options) of your set-top box. Please see your manual to find out how to do this.

The three main options are:

- 4:3 Choose this if you have a standard 4:3 screen.
- Letterbox Choose this if you want to watch widescreen pictures in full on a standard 4:3 screen. There will be black bands at the top and bottom of the picture.
- 16:9 Choose this if you have a widescreen TV.

Some widescreen TVs have their own size options – the best setting is usually 16:9 or auto size.